



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/580,309

05/25/2006

Atsushi Oohashi

Q94458

4060

23373 7590 03/04/2008
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

MOK, ALEX W

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

03/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,309	Applicant(s) OOHASHI, ATSUSHI	
	Examiner ALEX W. MOK	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashihara et al. (US Patent No.: 6236557).

For claim 12, Kashihara et al. teach an automotive alternator voltage control apparatus comprising an annular slinger (reference numeral 16, figure 10); a brush holder (reference numeral 17) that is disposed so as to extend radially from an outer peripheral wall surface of said slinger and that is formed such that a brush insertion aperture is open at an inner peripheral wall surface of said slinger (see figure 10); positive electrode and negative electrode brushes that are inserted into said brush insertion aperture so as to line up in an axial direction of said slinger and be movable in a radial direction of said slinger (reference numeral 18); a voltage regulator (reference numeral 21) which would inherently have an integrated circuit (IC) on which a circuit is formed that controls an automotive alternator output voltage; a surge absorber (reference numeral 30) that absorbs surges arising due to output voltage control by said voltage regulator; and a connector for input and output from and to an external device (see figure 10), Kashihara et al. do not specifically disclose the voltage regulator, the surge absorber, and the connector being disposed radially outside said slinger

alongside said brush holder on a first circumferential side of said brush holder, nor the slinger, the brush holder, and the connector being constituted by a resin body that is formed integrally using an insulating resin. It would have been obvious to have this configuration, since a person of ordinary skill would have been able to rearrange these components for the purpose of increasing the cooling efficiency, and Kashihara et al. already disclose a resin part (reference numeral 15) that connects these components (see figure 10), and a person of ordinary skill would have been able to use this resin to integrally form these components in order to suppress temperature increases in the invention.

For claim 13, it would have been obvious to have apertures for the voltage regulator and the surge absorber, since Kashihara et al. already disclose the resin body shown in figure 10 with the voltage regulator and surge absorber in the resin body, and a person of ordinary skill would have to form housing apertures in the resin body for the voltage regulator and surge absorber. A person of ordinary skill also would have been able to line up the housing apertures for the voltage regulator and the surge absorber, and the connector in a single column in a radial direction, since this would involve a mere change in the location of the components, and this configuration would have been obvious for the purpose of increasing the area of a heat sink.

For claim 14, it would have been obvious to have the voltage regulator housing aperture and the surge absorber housing aperture be formed on the resin body so it would be open at a first axial end, since Kashihara et al. already disclose the resin body with the regulator and the surge absorber, and a person of ordinary skill easily would

have been able to form an opening at the first axial end so that the voltage regulator and the surge absorber can be housed in the housing apertures from the first axial end.

For claim 17, it would have been obvious to have a voltage regulator housing aperture be formed on the resin body, since Kashihara et al. already disclose the voltage regulator on the resin body (figure 10), and a person of ordinary skill would have to form housing apertures for the voltage regulator, and it also would have been obvious to have the surge absorber disposed so it would overlap with the voltage regulator and the connector, since this would involve a mere change in the location of the components, and this configuration would have been obvious for the purpose of increasing the area of a heat sink.

3. Claims 15, 16, 18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashihara et al. as applied to claims 14 17 above, and further in view of Adachi et al. (US Patent No.: 5550415).

For claim 15, Kashihara et al. disclose the claimed invention except for insert conductors being insert molded at the first axial end and constituting the voltage regulator connecting terminal and a surge absorber connecting terminal. It would have been obvious to have conductors inserted into the resin body, since Adachi et al. disclose conductors (reference numeral 5a, figure 3) which are inserted into an insulating resin (reference numeral 13), and a person of ordinary skill in the art can modify this and have the conductors constitute a voltage regulator connecting terminal and a surge absorber connecting terminal and have them connected to the voltage

regulator and the surge absorber at the first axial end for the purpose of ensuring proper connecting configurations.

For claim 16, it would have been obvious to have a resin tub disposed in resin body, since Adachi et al. disclose a resin tub (figure 3), and a person of ordinary skill would have been able to modify this so that it would surround the voltage regulator housing aperture, the surge absorber housing aperture, the voltage regulator connecting terminal, and the surge absorber connecting terminal, and also have the resin (reference numeral 13) embed the connection portion between the voltage regulator and the voltage regulator connecting terminal and the connection portion between the surge absorber and the surge absorber connecting terminal, for the purpose of ensuring the insulation of the terminals for the voltage regulator and the surge absorber.

For claim 18, Kashihara et al. disclose the claimed invention except for the voltage regulator housing aperture being formed at the first axial end and having a plurality of insert conductors being insert molded into the resin body and constituting the voltage regulator connecting terminal and a surge absorber connecting terminal. It would have been obvious to have conductors inserted into the resin body, since Adachi et al. disclose conductors (reference numeral 5a, figure 3) which are inserted into an insulating resin (reference numeral 13), and a person of ordinary skill in the art can modify this and have the conductors constitute a voltage regulator connecting terminal and a surge absorber connecting terminal and have them connected to the voltage

regulator and the surge absorber at the first axial end for the purpose of ensuring proper connecting configurations.

For claim 22, it would have been obvious to have the voltage regulator housing aperture being formed on the resin body so as to be open at the first axial end, since Kashihara et al. already disclose the voltage regulator on the resin body as explained for claim 17 above, but does not specifically disclose the IC being constituted by a single-chip IC in which an IC chip is joined directly to an exposed surface of a heat sink that is disposed inside said voltage regulator housing aperture; a plurality of insert conductors being insert molded into said resin body so as to be exposed around an outer periphery of said voltage regulator housing aperture and constituting a voltage regulator connecting terminal and a surge absorber connecting terminal; said IC chip being connected to said voltage regulator connecting terminal by means of a bonding wire; said surge absorber being connected to said surge absorber connecting terminal; and an insulating resin gel material being disposed so as to embed said IC chip, said voltage regulator connecting terminal, said surge absorber connecting terminal, said bonding wire, a connection portion between said bonding wire and said voltage regulator connecting terminal, a connection portion between said bonding wire and said IC chip, and a connection portion between said surge absorber and said surge absorber connecting terminal. Adachi et al. disclose conductors insert molded into resin, and a person of ordinary skill can modify the resin so it can embed the IC chip, the voltage regulator connecting terminal, the surge absorber connecting terminal, the bonding wire, the connection portion between said bonding wire and said voltage regulator connecting

terminal, a connection portion between said bonding wire and said IC chip, and a connection portion between said surge absorber and said surge absorber connecting terminal for the purpose of ensuring the insulation of the components of the apparatus.

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kashihara et al. and Adachi et al. as applied to claim 18 above, and further in view of Nikawa et al. (US Patent No.: 6291913).

For claim 19, Kashihara et al. and Adachi et al. teach the claimed invention except for the cover disposed on the resin body to envelop the housing aperture and the connecting terminals for the voltage regulator and the surge absorber, the resin injection penetrating aperture, and the cover being filled with insulating resin. It would have been obvious to have this configuration, since Nikawa et al. disclose a cover (reference numeral 50, figure 2A) disposed over the voltage control apparatus (see figure 2A), and a person of ordinary skill can modify this technique so that the cover envelops the voltage regulator and the surge absorber for the purpose of insulating the components. It also would have been obvious to have the insulating resin embed the connection portions between the voltage regulator and the voltage regulator connecting terminal and between the surge absorber and the surge absorber connecting terminal, since Adachi et al. disclose a similar configuration where the resin embeds the terminals (see figure 3), and a person of ordinary skill would have been able to provide holes, i.e. resin injection penetrating apertures, also for the purpose of insulating the components and the terminals.

5. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashihara et al. as applied to claim 12 above, and further in view of Nikawa et al. (US Patent No.: 6291913).

For claims 20 and 21, Kashihara et al. disclose the claimed invention except for the IC being constituted by an IC chip being sealed in a resin, or the IC chip being mounted to an insulating circuit board. It would have been obvious to have these configurations, since Nikawa et al. disclose a voltage regulator circuit portion having IC chips and being sealed in a resin portion (see column 4, lines 63+), and the IC chip being mounted on the circuit board (see column 4, lines 63+), and a person of ordinary skill would have been able to apply these techniques in the invention of Kashihara et al. since the invention of Nikawa et al. is also related to automotive alternators with surge absorbers (see Abstract), and these techniques can be applied for design purposes for the IC chip of the voltage regulator.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX W. MOK whose telephone number is (571)272-

9084. The examiner can normally be reached on 7:30-5:00 Eastern Time, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alex W. Mok
Examiner
Art Unit 2834

AM

/Darren Schuberg/
Supervisory Patent Examiner, Art Unit 2834